General

Guideline Title

ACR Appropriateness Criteria® radiologic management of lower gastrointestinal tract bleeding.

Bibliographic Source(s)

Darcy MD, Cash BD, Feig BW, Fidelman N, Hara AK, Kapoor BS, Knuttien MG, Lambert DL, Minocha J, Rochon PJ, Shaw CM, Ray CE Jr, Lorenz JM, Expert Panel on Interventional Radiology. ACR Appropriateness CriteriaÂ® radiologic management of lower gastrointestinal tract bleeding [online publication]. Reston (VA): American College of Radiology (ACR); 2014. 8 p. [44 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Darcy MD, Ray CE Jr, Lorenz JM, Burke CT, Fidelman N, Greene FL, Hohenwalter EJ, Kinney TB, Kolbeck KJ, Kostelic JK, Kouri BE, Nair AV, Owens CA, Rochon PJ, Rockey DC, Vatakencherry G, Expert Panel on Interventional Radiology. ACR Appropriateness Criteria® radiologic management of lower gastrointestinal tract bleeding. [online publication]. Reston (VA): American College of Radiology (ACR); 2011. 5 p. [25 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

ACR Appropriateness Criteria®

Clinical Condition: Radiologic Management of Lower Gastrointestinal Tract Bleeding

Variant 1: Lower GI tract bleeding. Active bleeding with hematochezia or melena in a hemodynamically stable patient. Next procedure/intervention.

Treatment/Procedure	Rating	Comments
Transcatheter arteriography/intervention (TAI)	5	In the hemodynamically stable patient, colonoscopy is usually preferred as the first step; if there is active bleeding, TAI would be more likely to be beneficial.
Diagnostic/therapeutic colonoscopy	8	Upper endoscopy should also be considered in patients with brisk

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

Treatment/Procedure	Rating	Comments
Surgery	3	bleeding
Tc-99m RBC scan abdomen and pelvis	7	
CTA abdomen and pelvis with contrast	7	
MRI abdomen and pelvis without and with contrast	2	
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 2: Lower GI tract bleeding. Active bleeding in a hemodynamically unstable patient or a patient who has required more than 5 units of blood. Next procedure/intervention.

Treatment/Procedure	Rating	Comments
Transcatheter arteriography/intervention (TAI)	8	
Diagnostic/therapeutic colonoscopy	4	This procedure is challenging in an unstable patient.
Surgery	5	This procedure is particularly appropriate if pathology is known. It is likely best alternative if interventional radiology is not an option.
Tc-99m RBC scan abdomen and pelvis	1	
CTA abdomen and pelvis with contrast	5	This procedure is most appropriate if pathology is unknown. It may be used to define pathology causing the bleeding.
MRI abdomen and pelvis without and with contrast	1	
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 3: Lower GI tract bleeding. Colonoscopy localized the bleeding site and treatment was attempted. Ongoing or recurrent bleeding. Next procedure/intervention.

Treatment/Procedure	Rating	Comments
Transcatheter arteriography/intervention (TAI)	8	Use of this procedure depends on the type of lesion.
Diagnostic/therapeutic colonoscopy	4	Use of this procedure depends on the type of lesion, but if therapy has failed, repeat colonoscopy may not be beneficial.
Surgery	7	Use of this procedure depends on the type of lesion.
Tc-99m RBC scan abdomen and pelvis	2	
CTA abdomen and pelvis with contrast	3	This procedure may be helpful for further anatomic delineation.
MRI abdomen and pelvis without and with contrast	2	
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 4: Lower GI tract bleeding. Intermittent or obscure nonlocalized recurrent bleeding. Next procedure/intervention (assumes prior negative endoscopy).

Treatment/Procedure	Rating	Comments
Transcatheter arteriography/intervention (TAI)	4	There is limited evidence for this procedure for provocative angiography. It should only be done by expert team with experience in the technique.
Diagnostic/therapeutic colonoscopy	5	The utility of repeat colonoscopy depends largely on the character of bleeding and on the quality of the initial colonoscopy.
Surgery	3	
Tc-99m RBC scan abdomen and pelvis	7	
CTA abdomen and pelvis with contrast	8	
MRI abdomen and pelvis without and with contrast	2	
Capsule endoscopy	8	
Contrast small bowel radiography	2	Small-bowel follow-through is rarely helpful; enteroclysis requires an experienced provider.
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate		

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Summary of Literature Review

Introduction/Background

Acute gastrointestinal (GI) tract bleeding remains a major cause of morbidity and mortality despite advances in management. The mortality rate is around 10%, but increases to 40% in cases of massive bleeding associated with hemodynamic instability or the requirement for transfusion of more than 4 units of blood.

Acute lower gastrointestinal (LGI) tract bleeding is defined as bleeding into the small bowel distal to the ligament of Treitz, or bleeding into the large bowel. It may present as either melena or hematochezia, depending on the site. Causes of LGI bleeding include inflammatory bowel disease, neoplasms, stress ulcers, surgical anastomoses, vascular lesions such as angiodysplasia, and diverticulitis.

Diagnostic and therapeutic options for LGI bleeding are discussed in detail under the discussions by variants. Diagnostic options include colonoscopy, technetium (Tc)-99m red blood cell (RBC) scan, contrast-enhanced computed tomography (CT), magnetic resonance imaging (MRI), and transcatheter arteriography. Therapeutic options can be facilitated by transcatheter arteriography, colonoscopy, and surgery.

Discussion by Variant

Variant 1: Lower GI Tract Bleeding. Active Bleeding with Hematochezia or Melena in a Hemodynamically Stable Patient. Next Procedure/Intervention.

Radiological tests commonly used include radionuclide scans, CT, and transcatheter arteriography. Radionuclide scans have traditionally been the initial diagnostic test since they are more sensitive than arteriography for detecting lower rates of bleeding (approximately 0.05 to 0.1 mL/min, compared to 0.5 to 1.0 mL/min for angiography). However, radionuclide scans frequently provide inaccurate localization of the site of bleeding. Several recent studies reported incorrect localization in 10% to 25% of cases, some of which led to wrong site surgery. Despite the sensitivity of radionuclide scans, one of these studies also showed a 55% rate of false-negative studies when the diagnosis was confirmed by other means.

CT scanning has been shown to have the ability to detect bleeding as low as 0.3 mL/min and in some centers is replacing nuclear medicine scans for localization of bleeding. Although theoretically CT is less sensitive to bleeding than nuclear medicine scans, studies have shown the sensitivity of CT to range from 79% to 100%. These studies also demonstrated that with CT the specificity and diagnostic accuracy are also quite good (50% to 100% and 74% to 98%, respectively). A meta-analysis that included 22 studies and 672 patients showed that sensitivity and specificity for CT

were 85% and 92%, respectively. Importantly, a negative CT angiography (CTA) is a good indicator that nothing else may need to be done. A review of 62 patients with negative CTA showed that 77.4% did not rebleed nor require further interventions. In another study, no intervention was needed in any patient who was hemodynamically stable at the time of their negative CTA.

In addition to being more readily available and quicker to perform than radionuclide scans, CT has a number of other advantages as an initial test to localize LGI bleeding. It can often yield a diagnosis of the pathologic cause of the bleeding sometimes even if the patient is no longer actively bleeding. In one study, CT identified the pathology preoperatively in 50% of cases. Defining the cause of bleeding can help determine prognosis as well as the best options for treatment. This allows patients who have lesions that are unfavorable for embolization to be triaged directly to surgery. In one series, as many as 40% of the cases could be triaged directly to surgery as a result of the CTA. CT can also provide information about the arterial anatomy. It can identify variant anatomy or vessel occlusions that would influence subsequent transcatheter arteriography/intervention (TAI).

Urgent colonoscopy can be used for both the diagnosis and treatment of LGI bleeding. A randomized, controlled trial of urgent colonoscopy compared to standard care (scintigraphy and angiography followed by colonoscopy when the other tests were negative) was performed in 100 patients with acute LGI bleeding. Although the bleeding source was definitively diagnosed in 42% in the colonoscopy arm versus only 22% in the standard care group, there was no difference in outcomes, including rebleeding and hospital stay. Although the diagnostic yield for colonoscopy has been reported to range from 74% to 100%, colonoscopy can be very challenging in the face of major active bleeding, which can obscure the endoscopist's view. Whether to use colonoscopy or radiologic testing for initial diagnosis will depend on local expertise and availability. A recent randomized trial of patients with hematochezia and a negative upper endoscopy revealed that patients undergoing urgent lower endoscopy had essentially the same clinical outcome as those who had elective colonoscopy.

A negative arteriogram after a positive nuclear or CT study is not uncommon. In one recent study angiography revealed active extravasation in only 24% of patients with positive tagged RBC scans. This may result just from the lower sensitivity of arteriography compared to scintigraphy or CT. However, LGI bleeding is frequently intermittent, and thus in many cases the bleeding has simply stopped by the time the arteriogram was done. If the patient has had multiple bleeding episodes without a diagnosis being made, provocative angiography can be used to uncover the location of the bleeding. With this technique, anticoagulants, vasodilators, or thrombolytic drugs can be infused to provoke and identify the source of bleeding. The yield of provocative angiography ranges widely from 31% to 89%, probably due in part to lack of standardized technique. Despite the fact that this technique precipitates active bleeding, identification of the bleeding source allows treatment, and there are no published reports of uncontrollable hemorrhage with this technique.

Variants 2 and 3: Lower GI Tract Bleeding. Active Bleeding in a Hemodynamically Unstable Patient or a Patient Who Has Required More Than 5 Units of Blood. Colonoscopy Localized the Bleeding Site and Treatment was Attempted. Ongoing or Recurrent Bleeding. Next Procedure/Intervention.

Transcatheter arteriography is rarely used as the first diagnostic test except when the patient is massively bleeding and needs urgent therapy. Arteriography is more likely to identify the source of LGI bleeding in patients who have massive bleeding resulting in either hemodynamic instability or a requirement for transfusion of >5 units of blood. Demonstration of the site of bleeding at arteriography enables the possibility of catheter-directed treatment.

In some cases, endoscopic treatment may fail despite demonstration of the site and etiology of bleeding. Depending on the etiology, operator preference, and clinical presentation, angiographic and surgical options are considered.

Variant 4: Lower GI Tract Bleeding. Intermittent or Obscure Nonlocalized Recurrent Bleeding. Next Procedure/Intervention (Assumes Prior Negative Endoscopy).

GI bleeding that persists or recurs despite negative upper and lower endoscopic evaluation is commonly referred to as obscure GI bleeding. Often obscure bleeding originates from the small bowel, but no clear consensus exists on the optimal study to interrogate the small bowel. A meta-analysis of 17 studies compared capsule endoscopy (CE) to push enteroscopy and small-bowel barium radiography. The diagnostic yield was 63% to 67% for CE, 28% for push enteroscopy, and 8% for small-bowel barium studies. In a more recent study, patients with obscure bleeding were randomized to CE or small-bowel barium radiography. The diagnostic yield with CE was higher (30% versus 7%); however, the rate of subsequent bleeding was essentially equivalent, thus the improvement in diagnosis did not translate into any outcome improvement. CT, in particular CT enterography, has been used recently in the setting of obscure bleeding. Although there is often concordance, CT occasionally detects lesions not seen on CE and vice versa. One study found that CT enterography had much better sensitivity for detecting small-bowel bleeding sources compared to CE (88% versus 38%) primarily due to detection of small-bowel masses. However, a systematic review of 18 studies revealed CT enterography to have lower sensitivity (34% and 53%, respectively) than CE. Another study also showed that CE made a diagnosis in 57% of patients who had negative CT enterography. Recently, several studies have also compared CE to MR or MR enterography and shown better diagnostic yields for CE. There is not enough evidence to make a clear recommendation between these modalities, and choice

will depend in part on local expertise.

Angiographic Treatment

Microcatheter technology has allowed super-selective embolization (SSE) to become the most commonly used angiographic intervention, virtually replacing vasopressin infusion as the treatment of choice. The primary situation in which vasopressin infusion is still indicated is when a diffuse source of bleeding is identified and embolization would necessitate occlusion of too much vascular territory.

Technical success rates of SSE for LGI bleeding range from 73% to 100%. In this context technical success indicates successful deposition of emboli and elimination of contrast extravasation. When technical failure does occur, it is usually the result of vessel tortuosity or spasm.

Clinical success rates for SSE are usually lower than the technical success rates due to continued bleeding or early rebleeding despite angiographic evidence of a successful embolization. Clinical success in recent series has ranged from 63% to 96% with rebleeding rates ranging from 11.1% to 50%. However, in some series TAI has provided definitive treatment for 81% to 86% of patients. The efficacy of TAI varies depending on the location of the bleeding, small-bowel versus colon. Rebleeding is more common after small-bowel embolization than when treating colonic lesions, likely because of the more robust vascular supply and greater number of potential collateral pathways in the small bowel. The pathology causing the bleeding also affects success. A meta-analysis of 25 studies revealed that recurrent bleeding occurred in only 15% of cases of SSE for colonic diverticular bleeding but occurred in 45% of cases when the pathologic lesion (such as angiodysplasia or inflammatory bowel) had a more diffuse arterial blood supply. Coagulopathy is also a well-known risk factor for recurrent bleeding. In the face of coagulopathy, use of an agent that provides mechanical occlusion without requiring stable clot formation may be beneficial. N-butyl cyanoacrylate glue is such an agent and has been shown to provide effective hemostasis even in coagulopathic patients, although it does require a fair amount of expertise to use safely.

Signs of minor ischemic injury to the bowel (such as self-limited abdominal pain or asymptomatic serum lactic acid elevation) are not uncommon sequelae of LGI embolization. However, major ischemic complications (those requiring treatment) are uncommon. Major ischemic complications have been reported to be as high as 11%, but on average most series report a rate of 3% or less.

No large prospective, randomized trials have been conducted to compare TAI with surgery for LGI bleeding. However, TAI can be performed at the time of diagnostic arteriography and can be used in patients who may be too ill to tolerate surgery. Even though 7% to 25% of LGI bleeding patients will ultimately require surgery to stop bleeding or deal with the underlying pathology, stopping hemorrhage through the use of TAI can allow time to stabilize the patient and prep the bowel, both of which will contribute to a better surgical outcome. Consequently, use of TAI in patients with acute LGI bleeding, where active contrast extravasation is seen during diagnostic arteriography, is a safe and relatively effective treatment that should be considered, depending on local experience and expertise.

Summary of Recommendations

- In the patient in whom lower GI bleeding has stopped, colonoscopy is usually the preferred initial examination.
- For diagnosis of the cause of colonic bleeding, urgent colonoscopy is an effective technique but can be challenging in the face of ongoing bleeding.
- Nuclear scintigraphy is still the most sensitive radiologic test for determining if the patient is actively bleeding. However, CT scanning is almost as sensitive, provides better localization, and may define the pathologic cause of the bleeding.
- Arteriography is most likely to demonstrate the site of bleeding (and guide therapeutic embolization) in patients with evidence of ongoing bleeding (hemodynamically unstable patients, or those who have required transfusion of >5 units of blood).
- For obscure bleeding there is not a clear consensus whether CE or CT is more effective and they may be complimentary.
- The effectiveness of TAI varies depending on the pathology causing the bleeding. Diverticular bleeding with a focal arterial supply is more effectively treated than conditions with more diffuse blood supply such as angiodysplasias, tumors, and inflammatory conditions.
- TAI is more effective for colonic lesions, than for lesions involving the small bowel.
- Recurrence of bleeding following technically successful TAI may occur in 14% to 65% of patients.
- Symptomatic bowel ischemia following TAI is uncommon.
- Many of the diagnostic, surgical, and interventional procedures described here are highly specialized. Their availability and utility vary by institutional and operator experience.

Abbreviations

- CTA, computed tomographic angiography
- GI, gastrointestinal
- MRI, magnetic resonance imaging
- RBC, red blood cell
- Tc, technetium

Clinical Algorithm(s)

Algorithms were not developed from criteria guidelines.

Scope

Disease/Condition(s)

Acute lower gastrointestinal (LGI) tract bleeding

Guideline Category

Diagnosis

Evaluation

Management

Treatment

Clinical Specialty

Emergency Medicine

Family Practice

Gastroenterology

Internal Medicine

Oncology

Radiology

Surgery

Intended Users

Health Plans

Hospitals

Managed Care Organizations

Physicians

Utilization Management

Guideline Objective(s)

To evaluate the appropriateness of diagnostic and therapeutic options for the radiologic management of lower gastrointestinal (LGI) tract bleeding

Target Population

Patients with acute lower gastrointestinal (LGI) tract bleeding

Interventions and Practices Considered

1. Transcatheter arteriography/intervention (TAI)
2. Diagnostic and therapeutic colonoscopy (for lower gastrointestinal [LGI] bleeding)
3. Surgery
4. Technetium (Tc)-99m red blood cell (RBC) scan, abdomen and pelvis
5. Computed tomographic angiography (CTA), abdomen and pelvis, with contrast
6. Magnetic resonance imaging (MRI), abdomen, without and with contrast
7. Capsule endoscopy
8. Contrast small bowel radiography

Major Outcomes Considered

- Utility of diagnostic procedures in identifying the source of bleeding
- Sensitivity and diagnostic accuracy of radiological tests
- Effectiveness of treatment (surgery versus transcatheter arteriography/intervention)
- Clinical success rates
- Mortality and recurrent bleeding rates
- Length of hospitalization
- Ischemic injury/complication rates

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature Search Summary

Of the 25 citations in the original bibliography, 22 were retained in the final document. Articles were removed from the original bibliography if they were more than 10 years old and did not contribute to the evidence or they were no longer cited in the revised narrative text.

A new literature search was conducted in July 2013 to identify additional evidence published since the *ACR Appropriateness Criteria*® *Radiologic Management of Lower Gastrointestinal Tract Bleeding* topic was finalized. Using the search strategy described in the literature search companion (see the "Availability of Companion Documents" field), 29 articles were found. Nine articles were added to the bibliography. Twenty articles were not used due to either poor study design, the articles were not relevant or generalizable to the topic, the results were unclear, misinterpreted, or biased, or the articles were already cited in the original bibliography.

The author added 13 citations from bibliographies, Web sites, or books that were not found in the new literature search.

See also the American College of Radiology (ACR) Appropriateness Criteria® literature search process document (see the "Availability of Companion Documents" field) for further information.

Number of Source Documents

Of the 25 citations in the original bibliography, 22 were retained in the final document. The new literature search conducted in July 2013 identified nine articles that were added to the bibliography. The author added 13 citations from bibliographies, Web sites, or books that were not found in the new literature search.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Study Quality Category Definitions

Category 1 - The study is well-designed and accounts for common biases.

Category 2 - The study is moderately well-designed and accounts for most common biases.

Category 3 - There are important study design limitations.

Category 4 - The study is not useful as primary evidence. The article may not be a clinical study or the study design is invalid, or conclusions are based on expert consensus. For example:

a. The study does not meet the criteria for or is not a hypothesis-based clinical study (e.g., a book chapter or case report or case series description).
b. The study may synthesize and draw conclusions about several studies such as a literature review article or book chapter but is not primary evidence.
c. The study is an expert opinion or consensus document.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The topic author assesses the literature then drafts or revises the narrative summarizing the evidence found in the literature. American College of Radiology (ACR) staff drafts an evidence table based on the analysis of the selected literature. These tables rate the study quality for each article included in the narrative.

The expert panel reviews the narrative, evidence table and the supporting literature for each of the topic-variant combinations and assigns an appropriateness rating for each procedure listed in the variant table(s). Each individual panel member assigns a rating based on his/her interpretation of the available evidence.

More information about the evidence table development process can be found in the ACR Appropriateness Criteria® Evidence Table Development documents (see the "Availability of Companion Documents" field).

Methods Used to Formulate the Recommendations

Expert Consensus (Delphi)

Description of Methods Used to Formulate the Recommendations

Rating Appropriateness

The American College of Radiology (ACR) Appropriateness Criteria (AC) methodology is based on the RAND Appropriateness Method. The appropriateness ratings for each of the procedures or treatments included in the AC topics are determined using a modified Delphi method. A series of surveys are conducted to elicit each panelist's expert interpretation of the evidence, based on the available data, regarding the appropriateness of an imaging or therapeutic procedure for a specific clinical scenario. The expert panel members review the evidence presented and assess the risks or harms of doing the procedure balanced with the benefits of performing the procedure. The direct or indirect costs of a procedure are not considered as a risk or harm when determining appropriateness. When the evidence for a specific topic and variant is uncertain or incomplete, expert opinion may supplement the available evidence or may be the sole source for assessing the appropriateness.

The appropriateness is represented on an ordinal scale that uses integers from 1 to 9 grouped into three categories: 1, 2, or 3 are in the category "usually not appropriate" where the harms of doing the procedure outweigh the benefits; and 7, 8, or 9 are in the category "usually appropriate" where the benefits of doing a procedure outweigh the harms or risks. The middle category, designated "may be appropriate", is represented by 4, 5, or 6 on the scale. The middle category is when the risks and benefits are equivocal or unclear, the dispersion of the individual ratings from the group median rating is too large (i.e., disagreement), the evidence is contradictory or unclear, or there are special circumstances or subpopulations which could influence the risks or benefits that are embedded in the variant.

The ratings assigned by each panel member are presented in a table displaying the frequency distribution of the ratings without identifying which members provided any particular rating. To determine the panel's recommendation, the rating category that contains the median group rating without disagreement is selected. This may be determined after either the first or second rating round. If there is disagreement after the second rating round, the recommendation is "May be appropriate."

This modified Delphi method enables each panelist to articulate his or her individual interpretations of the evidence or expert opinion without excessive influence from fellow panelists in a simple, standardized and economical process. For additional information on the ratings process see the Rating Round Information document on the ACR Web site.

Additional methodology documents, including a more detailed explanation of the complete topic development process and all ACR AC topics can be found on the ACR Web site (see also the "Availability of Companion Documents" field).

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The recommendations are based on analysis of the current literature and expert panel consensus.

Summary of Evidence

Of the 44 references cited in the *ACR Appropriateness Criteria® Radiologic Management of Lower Gastrointestinal Tract Bleeding*

document, 18 are categorized as therapeutic references including 1 well-designed study, 7 good quality studies, and 2 quality studies that may have design limitations. Additionally, 26 references are categorized as diagnostic references including 5 good quality studies and 7 quality studies that may have design limitations. There are 22 references that may not be useful as primary evidence.

While there are references that report on studies with design limitations, 13 well-designed or good quality studies provide good evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Selection of appropriate radiologic and other procedures for diagnosis and treatment of patients with acute lower gastrointestinal (LGI) tract bleeding

Potential Harms

- Signs of minor ischemic injury to the bowel (such as self-limited abdominal pain or asymptomatic serum lactic acid elevation) are not uncommon sequelae of lower gastrointestinal (LGI) embolization. However, major ischemic complications (those requiring treatment) are uncommon. Major ischemic complications have been reported to be as high as 11%, but on average most series report a rate of 3% or less.
- Colonoscopy can be very challenging in the face of major active bleeding, which can obscure the endoscopist's view.
- Radionuclide scans frequently provide inaccurate localization of the site of bleeding. Several recent studies reported incorrect localization in 10% to 25% of cases, some of which led to wrong site surgery. Despite the sensitivity of radionuclide scans one of these studies also showed a 55% rate of false-negative studies when the diagnosis was confirmed by other means.

Qualifying Statements

Qualifying Statements

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those examinations generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Darcy MD, Cash BD, Feig BW, Fidelman N, Hara AK, Kapoor BS, Knuttien MG, Lambert DL, Minocha J, Rochon PJ, Shaw CM, Ray CE Jr, Lorenz JM, Expert Panel on Interventional Radiology. ACR Appropriateness CriteriaÂ® radiologic management of lower gastrointestinal tract bleeding [online publication]. Reston (VA): American College of Radiology (ACR); 2014. 8 p. [44 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2006 (revised 2014)

Guideline Developer(s)

American College of Radiology - Medical Specialty Society

Source(s) of Funding

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria®.

Guideline Committee

Committee on Appropriateness Criteria, Expert Panel on Interventional Radiology

Composition of Group That Authored the Guideline

Panel Members: Michael D. Darcy, MD (*Principal Author*); Brooks D. Cash, MD; Barry W. Feig, MD; Nicholas Fidelman, MD; Amy K. Hara, MD; Baljendra S. Kapoor, MB, BS; M-Grace Knuttinen, MD, PhD; Drew L. Lambert, MD; Jeet Minocha MD; Paul J. Rochon, MD; Colette M. Shaw, MB; Charles E. Ray Jr, MD, PhD (*Specialty Chair*); Jonathan M. Lorenz, MD (*Panel Chair*)

Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Darcy MD, Ray CE Jr, Lorenz JM, Burke CT, Fidelman N, Greene FL, Hohenwalter EJ, Kinney TB, Kolbeck KJ, Kostelic JK, Kouri BE, Nair AV, Owens CA, Rochon PJ, Rockey DC, Vatakencherry G, Expert Panel on Interventional Radiology. ACR Appropriateness Criteria® radiologic management of lower gastrointestinal tract bleeding. [online publication]. Reston (VA): American College of Radiology (ACR); 2011. 5 p. [25 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available from the American College of Radiology (ACR) Web site.

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

Availability of Companion Documents

The following are available:

- ACR Appropriateness Criteria®. Overview. Reston (VA): American College of Radiology; 2015 Feb. 3 p. Electronic copies: Available from the American College of Radiology (ACR) Web site.
- ACR Appropriateness Criteria®. Literature search process. Reston (VA): American College of Radiology; 2015 Feb. 1 p. Electronic copies: Available from the ACR Web site.
- ACR Appropriateness Criteria®. Evidence table development – diagnostic studies. Reston (VA): American College of Radiology; 2013 Nov. 3 p. Electronic copies: Available from the ACR Web site.
- ACR Appropriateness Criteria®. Evidence table development – therapeutic studies. Reston (VA): American College of Radiology; 2013 Nov. 4 p. Electronic copies: Available from the ACR Web site.
- ACR Appropriateness Criteria® radiologic management of lower gastrointestinal tract bleeding. Evidence table. Reston (VA): American College of Radiology; 2014. 18 p. Electronic copies: Available from the ACR Web site.
- ACR Appropriateness Criteria® radiologic management of lower gastrointestinal tract bleeding. Literature search. Reston (VA): American College of Radiology; 2014. 1 p. Electronic copies: Available from the ACR Web site.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on April 24, 2007. This NGC summary was updated by ECRI Institute on February 28, 2012. This NGC summary was updated by ECRI Institute on April 9, 2015.

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